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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/103,528	06/24/1998	ERIC BENAZZI	PET1673	3106

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EXAMINER

GRIFFIN, WALTER DEAN

ART UNIT PAPER NUMBER

1764

DATE MAILED: 07/07/2003

28

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/103,528

Applicant(s)

BENAZZI ET AL.

Examiner

Walter D. Griffin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-10, 12, 17, 19-23 and 25-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-10, 12, 17, 19-23 and 25-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Response to Amendment

The declaration under 37 CFR 1.132 filed on May 2, 2003 is sufficient to overcome the rejection of claims based upon LaPierre et al. (US 4,855,530) in view of Rubin (US 4,640,829) and Hellring et al. (US 5,174,980). Accordingly, other arguments concerning the rejections are moot and will not be addressed.

Additionally, the claim objections and the rejections under 35 USC 112, second paragraph, as described in paper no.24 have been withdrawn in view of the amendment filed on May 2, 2003.

New rejections follow.

Claim Objections

Claims 32 and 35 are objected to because of the following informalities: The expression "polymethylene – diamine" in each of claims 32 and 35 is incorrect. The correct expression should apparently be "polymethylene α - ω diamine". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-10, 12, 17, 19-21, 23, and 25-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Casci et al. (US 4,537,754) in view of LaPierre et al. (US 4,855,530) and Hellring et al. (5,174,980).

The Casci reference discloses an EU-1 catalyst and its use in various hydrocarbon conversion processes including isomerization of alkanes (i.e., paraffins). The catalyst can contain various cations including phosphorus, Group VI and VIII metals and the noble metals depending on its application and is in the acid form. The EU-1 zeolite is associated with a matrix in the catalyst. The zeolite is synthesized in the same manner as claimed. The formulas for the EU-1 zeolite disclose Si/T ratios within the claimed ranges. See column 4, lines 1-41; column 5, lines 42-59 and 66-68; column 6, lines 1-11; Table 4, and the claims.

The Casci reference does not disclose the process conditions, does not disclose the specific hydro-dehydrogenating elements in relation to a process for improving pour point, does

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not disclose the amount of zeolite in relation to the total amount of zeolite plus matrix, does not disclose the claimed feeds, and does not disclose that a portion of the element T is removed to achieve the claimed Si/T ratio.

The LaPierre reference discloses a process for improving (i.e., reducing) the pour point of a hydrocarbon feedstock by isomerization of paraffins. The feedstock contains long chain (i.e., C₇+) paraffins, especially paraffins in the range of C₁₀ to C₄₀, and may be selected from gas oils, hydrocracker effluents, and reduced crudes. The feedstock will typically have a boiling range of about 260°C to 560°C. The process comprises contacting the feedstock with a zeolite catalyst such as ZSM-50 at conversion conditions. Conversion conditions include temperatures ranging from 150°C to 500°C, pressures ranging from atmospheric to 25,000 kPa (atmospheric up to 250 bar), space velocities ranging from 0.1 to 10 hr⁻¹, and hydrogen to feedstock ratios ranging from 200 to 4000 l/l. The zeolite used in the catalyst may be dealuminated by various treatments including heat treatment and acid extraction or extraction with a compound such as EDTA. The resulting zeolite will have a silica:alumina ratio of 10:1 or more (e.g., 500:1 or higher). This indicates that the resulting dealuminated zeolite has a silica:alumina ratio that is higher by at least 10% of the silica:alumina ratio of the starting zeolite. The catalyst also contains a hydrogenation component such as a noble metal (e.g., Pt, Re). It may also contain non-noble group VIII and VI metals. The catalyst may also contain a matrix with the zeolite content ranging from between 1 and 99 weight percent. See column 1, lines 54-68; column 2, lines 1-13 and 34-53; column 3, lines 47-55; column 4, lines 33-35; column 5, lines 57-68; column 6, lines 1-24; column 7, lines 7-9 and 26-68; column 8, lines 1-19, 32-45, and 54-68; column 9, lines 1-27 and 56-68; column 10, lines 1-31, 67, and 68; and column 11, lines 1-9.

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The Hellring reference discloses that EU-1 and ZSM-50 have the same structure. See column 3, lines 17-24.

As shown by Hellring, the claimed zeolite and the zeolite disclosed by LaPierre are similar.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Casci by utilizing the conditions of LaPierre because these conditions are effective for the desired isomerization of Casci in a process that utilizes a zeolite catalyst that is structurally similar to the disclosed EU-1 zeolite catalyst. Therefore, the conditions of LaPierre would be expected to be effective in the process of Casci.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Casci by including the claimed hydro-dehydrogenating elements in the catalyst and by having the claimed amount of zeolite in relation to the total amount of zeolite and matrix as suggested by LaPierre because these elements and amounts are effective in a similar catalyst to achieve the desired isomerization.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Casci by dealuminating the zeolite as suggested by LaPierre because the dealumination of the similar zeolite of LaPierre results in a catalyst whose degree of acid functionality is such that the isomerization reaction is promoted. Therefore, dealumination of the zeolite of Casci would be expected to result in an effective isomerization catalyst.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Casci by utilizing the feeds disclosed by

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LaPierre because these feeds contains the alkanes disclosed by Casci and are shown by LaPierre to be effectively treated in an isomerization process that utilizes a catalyst having similar properties to the claimed catalyst.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Casci et al. (US 4,537,754) in view of LaPierre et al. (US 4,855,530) and Hellring et al. (US 5,174,980) as applied to claim 21 above, and further in view of Sonnemans et al. (US 5,935,414).

None of the previously discussed references discloses the presence of phosphorus in the catalyst in relation to an isomerization reaction.

The Sonnemans reference discloses that dewaxing (i.e., isomerization) catalysts may contain phosphorus. See column 5, lines 36-59.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by including phosphorus in the catalyst as suggested Sonnemans because phosphorus promotes the desired dewaxing (i.e., isomerization) reactions.

Conclusion

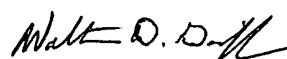
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
July 2, 2003